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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,103	01/26/2006	Shihe Xu	DC5160PCT1	9443

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EXAMINER	
LEE, JAE	

ART UNIT	PAPER NUMBER
2895	

NOTIFICATION DATE	DELIVERY MODE
10/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents.admin@dowcorning.com

Office Action Summary	Application No.	Applicant(s)	
	10/566,103	XU, SHIHE	
	Examiner	Art Unit	
	JAE LEE	2895	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/26/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

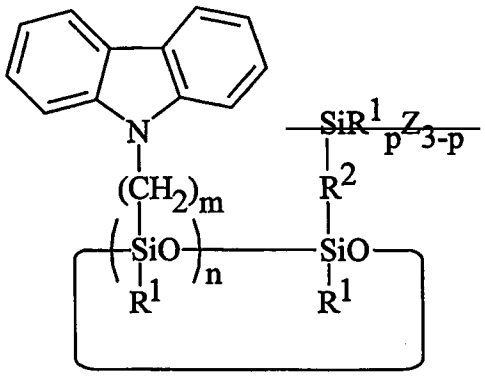
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hohle et al. (C. Hohle, P. Strohiregl, "Bifunctional Cyclosiloxanes with Photorefractive

Properties", SPIE Conference on Second-Order Organic Nonlinear Optics II, July 1999, pages 353-358) in view of Couillard et al. (Pub No. US 2005/0011434 A1, hereinafter Couillard et al.).

With regards to **claim 1**, Hohle et al. teaches a curable carbazolyl-functional cyclosiloxane having the formula:



wherein R1 is C1 to C10 hydrocarbyl free of aliphatic unsaturation; R2 is -CH2-CHR3- or- CH2-CHR3-Y-, wherein Y is a divalent organic group and R3 is R1 or -H; Z is a hydrolysable group; m is an integer from 2 to 10; n is 2, 3, 4, 5, or 6; and p is 0 or 1 (see pg. 355, Azo-CSX 3 used).

Hohle et al., however, does not teach having a $SiR^1_pZ_{(3-p)}$ attached to the R^2 group.

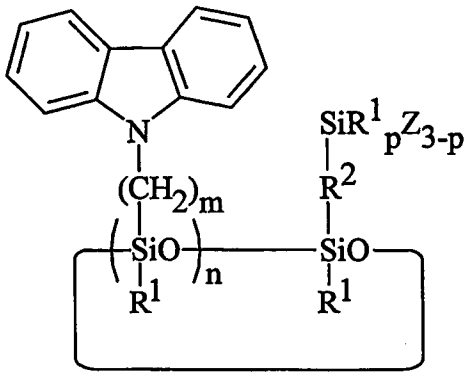
In the same field of endeavor, Couillard et al. teaches a system wherein the silanes would contain or be modified to contain reactive functionality such as methoxysilanes and ethoxysilanes, whereby such alkoxy silanes or trihalo silanes are typically used to form the siloxane polymers (see ¶26, lines 7-14).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate a silane into the end of the chain to form a functionalized group for further reaction in forming conventional siloxanes as taught by Couillard et al.

With regards to **claim 2**, Hohle et al. teaches the curable carbazolyl-functional cyclosiloxane according to **claim 1**, wherein n has value of 3,4, or 5 (see page 355).

With regards to **claim 3**, Hohle et al. teaches a silicone composition comprising:

(A) a curable carbazolyl-functional cyclosiloxane having the formula:



wherein R1 is C1 to C10 hydrocarbyl free of aliphatic unsaturation; R2 is -CH2-CHR3- or- CH2-CHR3-Y-, wherein Y is a divalent organic group and R3 is R1 or -H; Z is a hydrolysable group; m is an integer from 2 to 10; n is 2, 3, 4, 5, or 6; and p is 0 or 1 (see pg. 355, Azo-CSX 3 used).

(B) a condensation catalyst (see page 355, Pt-catalyst is also classified as a "condensation catalyst"); and

(C) an organic solvent (see page 355, organic solvent toluene used).

Hohle et al., however, does not teach having a $SiR^1_pZ_{(3-p)}$ attached to the R^2 group.

In the same field of endeavor, Couillard et al. teaches a system wherein the silanes would contain or be modified to contain reactive functionality such as methoxysilanes and ethoxysilanes, whereby such alkoxy silanes or trihalo silanes are typically used to form the siloxane polymers (see ¶26, lines 7-14).

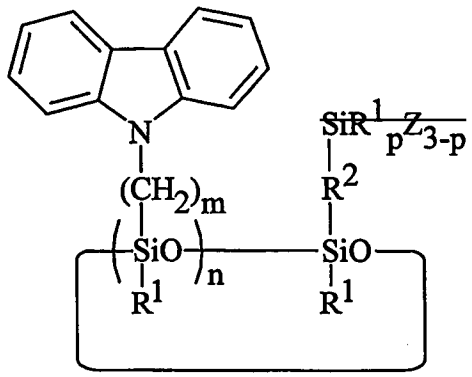
Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate a silane into the end of the chain to form a functionalized group for further reaction in forming conventional siloxanes as taught by Couillard et al.

With regards to **claim 4**, Couillard et al. teaches the silicone composition according to claim 3, wherein p has a value of 1, and further comprising a cross-linking agent having the formula R4tSiZ4.t, wherein R4 is C1 to C8 hydrocarbyl or halogen-substituted hydrocarbyl, Z is a hydrolysable group, and t is 0 or 1 (see ¶26, SiH_4 utilized).

5. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hohle et al. in view of Couillard et al. and further in view of Wu et al. (Pub No. US 2005/0040392 A1, hereinafter Wu et al.) and further in view of Kitano et al. (Pub No. US 2003/0211358 A1, hereinafter Kitano et al.).

With regards to **claim 5**, Hohle et al. teaches a silicone composition comprising:

(A) a curable carbazolyl-functional cyclosiloxane having the formula:

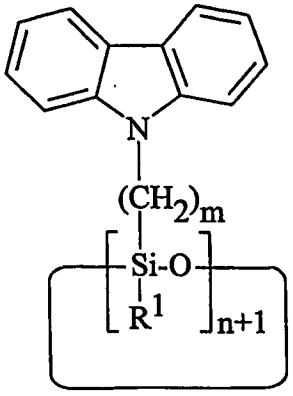


wherein R1 is C1 to C10 hydrocarbyl free of aliphatic unsaturation; R2 is -CH2-CHR3- or- CH2-CHR3-Y-, wherein Y is a divalent organic group and R3 is R1 or -H; Z is a hydrolysable group; m is an integer from 2 to 10; n is 2, 3, 4, 5, or 6; and p is 0 or 1 (see pg. 355, Azo-CSX 3 used).

(B) a condensation catalyst (see page 355, Pt-catalyst is also classified as a "condensation catalyst"); and

(C) an organic solvent (see page 355, organic solvent toluene used).

At least one carbazolyl-functional cyclosiloxane having the formula:



wherein R1 is C1 to C10 hydrocarbyl free of aliphatic unsaturation, m is an integer from 2 to 10, and n is 2, 3, 4, 5, or 6 (see pg. 355); and

Hohle et al., however, does not teach having a $SiR^1_pZ_{(3-p)}$ attached to the R^2 group.

In the same field of endeavor, Couillard et al. teaches a system wherein the silanes would contain or be modified to contain reactive functionality such as methoxysilanes and ethoxysilanes, whereby such alkoxy silanes or trihalo silanes are typically used to form the siloxane polymers (see ¶26, lines 7-14).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate a silane into the end of the chain to form a functionalized group for further reaction in forming conventional siloxanes as taught by Couillard et al.

Hohle et al. also does not teach:

A substrate having a first opposing surface and a second opposing surface;

A first electrode layer overlying the first opposing surface;

A light-emitting element overlying the first electrode layer, the light emitting element comprising:

A hole transport layer

A second electrode layer overlying the light-emitting element; and

An electron transport layer, wherein the hole transport layer and the electron transport layer lie directly on one another, and one of the hole transport layer and the electron transport layer comprise a carbazolyl-functional polysiloxane selected from a cured carbazolyl functional polysiloxane prepared by curing.

In the same field of endeavor, Wu et al. teaches the aforementioned limitations (see Fig. 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to produce an OLED with the specific structure aforementioned since it is conventional and well known in the art which enables the practitioner in the art to produce such a device.

Hohle et al. also does not teach that one of the hole transporting layer and the electron transporting layer comprises a carbazolyl-functional polysiloxane.

In the same field of endeavor, Kitano et al. teaches how a hole transporting layer can be comprised of polysiloxane having a carbazole group (see ¶9).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate a carbazolyl functional polysiloxane as the hole transporting layer since Kitano et al. has enabled the practitioner in the art to design such a device.

With regards to **claim 6**, Kitano et al. teaches the organic light emitting diode according to **claim 5**, wherein the hole transport layer is a carbazolyl-functional polysiloxane (see ¶9).

6. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hohle et al., Couillard et al., Wu et al., and Kitano et al. as applied to **claim 5** above, and further in view of Zhu et al. (Pub No. US 2004/0043313 A1, hereinafter Zhu et al.).

With regards to **claim 7**, Kitano et al. teaches the how an electron transport layer may be carbazole derivatives which one of ordinary skill in the art can include polysiloxane (see ¶34).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include a carbazole derivative such as a carbazolyl based polysiloxane since Zhu et al. enables the practitioner in the art to produce such a device by using a carbazole derivative.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAE LEE whose telephone number is (571)270-1224. The examiner can normally be reached on Monday - Friday, 7:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richards can be reached on 571-272-1736. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jae Lee/
Examiner, Art Unit 2895

/Fernando L. Toledo/
Primary Examiner, Art Unit 2895

JML